

A considerable number of thunderstorms were reported during the latter part of the month, especially in the Gulf States.

#### MISCELLANEOUS PHENOMENA.

The prevailing winds for the month were from the north, northwest, or west in all States in the district, except Virginia and Florida, where they were from the south and northeast, respectively. The wind movement was high, and at all the coast stations, Norfolk, Hatteras, Charleston, Savannah, Key West, Pensacola, and Sand Key the average velocity exceeded 10 miles an hour, and it was also over 10 miles an hour at Atlanta. Dangerous gales prevailed, especially on the 27th, the date of the lowest atmospheric pressure for the month. The following maximum 5-minute velocities were registered on that date: Richmond, 52 miles south; Norfolk, 55 miles southwest; Hatteras, 48 miles southwest; Raleigh, 50 miles southwest, equaling the high record of January 3, 1913; Jacksonville, 59 miles southwest; and Pensacola, 56 miles southwest. A high velocity of 54 miles was recorded at Atlanta on the 21st, from the east, a direction from which high winds at that station are rare.

The average number of clear days for the district was 12; of partly cloudy days, 6; cloudy days, 10. The average number of days with appreciable precipitation was 8.

The maximum amount of sunshine was received in the extreme southern and northern portions of the district; at Richmond, Va., the percentage of the possible amount was 74; at Miami, Fla., 72. The average number of hours of actual sunshine for the district was 178, indicating 58 per cent of the possible amount.

#### SEVERE LOCAL STORMS.

A destructive local storm or tornado passed over Butler, Crenshaw, and Pike Counties in Alabama on the morning of February 27. Many buildings were destroyed or damaged, and the property loss amounted to over \$100,000. Three or four persons were killed.

Considerable damage was done in southern Georgia by the high winds on the 27th, which at many places seem to have developed into local whirls of almost tornadic force. The damage in the aggregate was large, though spread over a very extended territory. At the Raines Settlement near Cordele several persons were injured and a school building and several dwelling houses collapsed. At Omaha, a village west of Americus, the church was wrecked and several residences destroyed. Similar damage was reported from several places near Milledgeville, Albany, and Bainbridge. Telegraphic communication was interrupted.

#### RIVER CONDITIONS.

The rivers of Virginia and North Carolina were moderately high during the first few days of February, but soon declined to relatively low stages; the heavy rains on the 27th caused substantial rises on the last day of the month, but flood stages were not attained and no warnings were necessary.

The Santee River in South Carolina was above flood stages on the 2d and 3d at Rimini and Ferguson, S. C., and thereafter experienced but slight fluctuations,

maintaining nearly full banks during the remainder of the month. Other rivers in South Carolina did not attain flood stages at any point. The upper Pedee and Waccamaw Rivers were below the normal flow for February, without pronounced fluctuations; the rise that was in progress in the lower Pedee at the close of January culminated in a stage of 13.4 feet at Smith Mills on the 6th (flood stage 14 feet).

On February 2 and 3 moderately heavy rains fell from Macon, Ga., southward in the valley of the Ocmulgee River which in connection with the already swollen condition of the river from the rains of the latter part of January indicated flood stages at many places along the lower course of the river. The necessary warnings were issued on February 3. The flood stage was reached at Abbeville on the 5th and maintained until the 8th; the highest stage at Lumber City was 10.4 feet on the 9th and 10th, and the river continued moderately full during the remainder of the month. No very high stages occurred in the Flint and Chattahoochee Rivers in western Georgia. A marked rise of 13 feet in 24 hours occurred twice in the Coosa River at Rome, namely, on the 11th to 12th and 27th to 28th, the maximum stage being 20.6 feet on the latter date (flood stage 30 feet).

At the beginning of the month the Alabama River and its tributaries were high, being above flood stage, however, only at Selma, Ala., where the river on February 1 attained a stage of 37.7 feet (flood stage, 35 feet). The river then declined to the lowest stages about the end of the first decade. The heavy rains on the 27th caused a rapid rise in the Coosa, but flood stages were not attained.

High flood stages consequent on heavy rains in the watershed of the Tombigbee and Black Warrior Rivers occurred at Tuscaloosa and Demopolis, Ala. The average stage at Demopolis for the month was 43.8 feet and a crest stage of 50.6 feet occurred on February 5 (flood stage, 35 feet). The river at Demopolis was above flood stage throughout the month, except during a few days from the 26th to the 28th. At Tuscaloosa, Ala., the river reached a stage of 50.8 feet on February 13 and a second crest of 56.2 feet on February 28. A complete account of the floods in the Tombigbee and Black Warrior Rivers will be given in the March number of the Monthly Weather Review.

The rivers in Mississippi were all moderately high during the first part of the month with floods in the Pearl, Pascagoula, and lower Chickasawhay Rivers, continued from the preceding month. All passed below the flood stage during the first decade, except the lower Pearl, which continued above the flood stage at Columbia until the 12th and at Jackson until the 24th.

#### FLOODS IN THE PASCAGOULA AND PEARL RIVERS DURING JANUARY AND FEBRUARY, 1913.

By J. H. JAQUA, Assistant Observer, Meridian, Miss.

General and heavy rains set in over the district on January 23, which necessitated warnings for flood stages in the Pearl River at Pearl River, La., and in the Chickasawhay at Shubuta. The stages forecasted were: 15.5 feet at Pearl River by January 28 or 29, and 25 feet at Shubuta by January 26 or 27. The stages attained were 15.7 feet at Pearl River January 29 and 15.8 on the 30th, after which the waters began to recede, and 25.1 feet at Shubuta on January 27.

The rains that began on the afternoon of January 26 were the heaviest for the month and fell during a period of less than 24 hours, causing a marked and sudden rise in the rivers. Flood warnings covering the entire district were issued at 8.30 a. m. of January 27, and the following were the stages predicted and ultimately reached during the rise:

	Stage predicted.	Stage attained.
Chickasawhay River:		
Enterprise.....	27 feet on 28th or 29th.....	22.2 feet on 29th.
Shubuta.....	33 feet on 30th or 31st.....	31.9 feet on 29th.
Pascagoula River:		
Merrill.....	22 feet on 30th.....	
Leaf River:		
Hattiesburg.....	18 feet on 29th.....	18.1 on 28th.
Pearl River:		
Jackson.....	27 feet by Feb. 1.....	27 feet on Jan. 31.
Columbia.....	22 feet by Jan. 29.....	21 feet Jan. 30 and 31.
Pearl River.....	16.5 feet by Feb. 1.....	15.6 feet on Feb. 1.

On February 3 the river at Jackson was 8.7 feet above flood stage, at Columbia 2.1 feet above, at Shubuta 5.6 feet above, and at Merrill 0.9 feet above flood stage, when additional heavy rains on that date made necessary renewed warnings for continued high waters, which were issued at 1.30 p. m., on the 3d, as follows:

	Stage forecasted.	Stage attained.
Chickasawhay River:		
Enterprise.....	19 feet by the 4th or 5th....	15 feet on 4th.
Shubuta.....	33.5 feet by 6th.....	30.6 feet on 3d.
Pascagoula River:		
Merrill.....	22 feet by 9th.....	21 feet on 5th and 6th.
Pearl River:		
Columbia.....	21.5 feet by 6th.....	19.6 feet on 5th.
Jackson.....	31.5 feet by 8th.....	28.9 feet on 4th.

All warnings were given wide distribution in the localities likely to be affected. In addition to advising the regular river observers of the stages expected, postal-card warnings were sent to each postmaster at places in the lowlands on January 27, advising that the rivers would be over flood stage for the next 10 days, and that all property in danger should be protected or removed immediately. The postmasters receiving this warning state that a large amount of property was saved thereby. Prompt action was taken to remove all stock from the lowlands. The losses, estimated from about 50 reports, are as follows: Damage to railroads, \$1,000; value of crops destroyed, \$2,000; damage to farm lands by erosion or deposit, \$3,000; losses by enforced suspension of business, \$2,000. The value of the property saved by the warnings was about \$23,000.